



Vishay

High Performance, High Precision Wire-Bondable 0402 Capacitor for Smartcard, High-Frequency and Substrate-Embedded Applications



PATENTED

ELECTRICAL SPECIFICATIONS

Operating Temperature: - 55 °C to + 125 °C
Temperature Coefficient of Capacitance (TCC): 0 ± 30 ppm/°C
Insulation Resistance: 10¹¹ Ω min
Voltage: 2.5 x rated voltage (DC) for 5 seconds
Ageing: none

ENVIRONMENTAL SPECIFICATIONS

Life Test: 1000 hours, + 125 °C at 2 x rated voltage (DC)
Thermal Shock: 100 Cycles, - 55 °C/+ 150 °C
Moisture Resistance: 1000 hours at rated DCV, 85 % RH, + 85 °C

FEATURES

- Terminations are RoHS compliant in Au (JEDEC “e4”). Sn/Ag/Cu (JEDEC “e1”) & Sn/Pb available
- New technology monolithic-silicon capacitor based on a special semiconductor process
- Construction reduces the parasitic inductance and brings the SRF values to ultra-high frequencies
- Capacitance is extremely stable in a wide range of frequencies from 1 MHz to several GHz
- High Q and low ESR
- Tight tolerance to ± 1 % or 0.05 pF
- Ultra high SRF
- Low parasitic inductance (~ 0.032 nH)
- Capacitance range: 0.1 pF to 180
- Low profile - 0.18 mm (0.007 inches)
- Wire-bondable (Type B) or SMD (Type C)



RoHS*
COMPLIANT

APPLICATIONS

- Contactless Smart Cards
- Embedded substrates
- High-frequency/high data-rate circuits

CAPACITANCE TOLERANCE CODE

| FOR LESS THAN 10 pF | | | FOR 10 pF AND HIGHER | | |
|---------------------|-----------|-----------|----------------------|-------|-------|
| A | B | C | F | G | J |
| ± 0.05 pF | ± 0.10 pF | ± 0.25 pF | ± 1 % | ± 2 % | ± 5 % |

ORDERING INFORMATION

| HPC | 0402 | B | 101 | G | G | X | T0 |
|-------|------|-----------------------------|---|-----------------------|--|--|---|
| MODEL | SIZE | TYPE | CAPACITANCE VALUE | CAPACITANCE TOLERANCE | TERMINATION | VOLTAGE | PACKAGING |
| | | B or C B = WB C = SMD | The first two digits are significant, the third is a multiplier. An “R” indicates a decimal point. Examples: 101 = 100 pF Expressed in pF | see chart above | G = Gold bonding termination (B type) W = Lead (Pb)-free X = Tin/Lead termination (C type) | 1 = 6 V Z = 10 V Y = 16 V X = 25 V M = 50 V L = 100 V | T0 = 10 000 pcs T5 = 5000 pcs T1 = 1000 pcs tape and reel W = 20 000 pcs on dicing frame (available on B type only) |

For “C” Type, “W” terminations preferred over “X”.
 “See Part Numbering System, Document 10147, for complete explanations.”

* Pb containing terminations are not RoHS compliant, exemptions may apply.



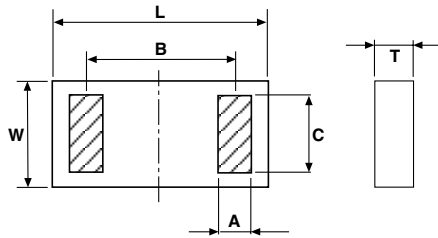
Not for new designs, this product will be discontinued soon

HPC0402B/C

High Performance, High Precision
Wire-Bondable 0402 Capacitor for
Smartcard, High-Frequency and

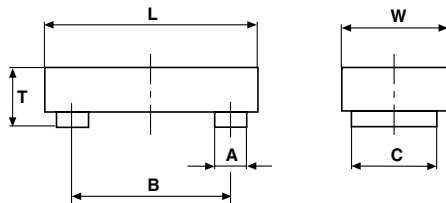
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TYPE B - DIMENSIONS



| DIMENSION | INCHES | MILLIMETERS |
|-----------|---------------|-------------|
| L | 0.040 ± 0.002 | 1.02 ± 0.05 |
| W | 0.020 ± 0.002 | 0.51 ± 0.05 |
| T | 0.007 ± 0.001 | 0.18 ± 0.02 |
| A | 0.006 ± 0.002 | 0.15 ± 0.05 |
| B | 0.028 ± 0.002 | 0.71 ± 0.05 |
| C | 0.014 ± 0.002 | 0.37 ± 0.05 |

TYPE C - DIMENSIONS



| DIMENSION | INCHES | MILLIMETERS |
|-----------|---------------|-------------|
| L | 0.040 ± 0.002 | 1.02 ± 0.05 |
| W | 0.020 ± 0.002 | 0.51 ± 0.05 |
| T | 0.010 ± 0.002 | 0.25 ± 0.05 |
| A | 0.006 ± 0.002 | 0.15 ± 0.05 |
| B | 0.028 ± 0.002 | 0.71 ± 0.05 |
| C | 0.014 ± 0.002 | 0.37 ± 0.05 |

For PAD Design please see assembly/reflow recommendations document 10125.

CAPACITANCE RANGE AND VOLTAGE

See HPC0402A data sheet, document number 10117.



Disclaimer

All product specifications and data are subject to change without notice.

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